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Notice of Allowability

Application No.

10/799,051

Examiner

Erin D. Chiem

Applicant(s)

GILARDI ET AL.

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/16/06.
2. ☒ The allowed claim(s) is/are 1,7,9,10,12-17,20 and 23-27.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date CLIS
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney Walter Grollitsch (48678) on December 21, 2006.

The application has been amended as follows:

Claim 10. An electro-optical modulator, comprising:

- a housing;
- an input fiber connected to an end of the housing and an output fiber connected to another end of the housing, the fibers connected to the housing along substantially the same axis;
- a RF connector connected to the housing such that the RF connector is substantially perpendicular to the axis of the fibers;
- a modulator chip having a low impedance and an RF electrode, wherein the modulator chip is optically connected to the input fiber and the output fiber; and
- a microwave input chip coupled to the modulator chip, the microwave input chip having a resistor member comprises a thin film resistor member with a low impedance

for increasing the total input impedance of the modulator, the thin film resistor ~~member~~ connects the RF connector to the RF electrode of the modulator chip.

Claim 11. (Cancelled)

Claim 12. The electro-optical modulator of Claim 10, wherein the thin film resistor ~~member~~ comprises a lumped resistance.

Claim 14. The electro-optical modulator of Claim 10, further comprising a microstrip line or coplanar line in the microwave input chip, the thin film resistor ~~member~~ being placed in the microstrip line.

Claim 16. The electro-optical modulator of Claim 10, further comprising a coplanar waveguide in the microwave input chip, the thin film resistor ~~member~~ being placed in the coplanar waveguide.

Claim 24. The electro-optical modulator of Claim 10, wherein the thin film resistor ~~member~~ is positioned between the RF connector and the RF electrode such that an electrical return loss is lowered which results in a lower driving voltage relative to a standard modulator.

Claim 25. An electro-optical modulator, comprising:

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a housing with an input fiber at one end and an output fiber at another end thereof, wherein the fibers are aligned in the housing along substantially the same axis;

a modulator chip optically connected to the input fiber and the output fiber, the modulator chip includes an RF electrode;

[[a]] the RF connector connected to the modulator chip, wherein the RF connector is positioned such that the RF connector is substantially perpendicular to the axis of the fibers; and

a RF accessory chip coupled to the modulator chip, the RF accessory chip having a resistor member comprising a thin film resistor with a low impedance for increasing the total input impedance of the modulator chip, wherein the thin film resistor ~~member~~ connects the RF connector to the RF electrode of the modulator chip.

Claim 26. The electro-optical modulator of Claim 25 [[26]], wherein the thin film resistor ~~member~~ is positioned between the RF connector and the RF electrode such that an electrical return loss is lowered which results in the modulator chip having a reduced length.

Allowance

The following is an examiner's statement of reasons for allowance:

The prior art made of record fails to explicitly disclose an electro-optical modulator comprising a housing with an input fiber at one end and an output fiber at another end thereof, wherein the fibers are connected to the housing along substantially the same axis; a lithium niobate chip having a low impedance and an RF electrode; a microwave input chip coupled to

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the modulator chip, the microwave input chip having a thin film resistor for connecting a RF connector to the RF electrode of the Lithium Niobate chip...a coplanar waveguide in the microwave input chip, the thin film resistor being placed in the coplanar waveguide.

Upon further search and consideration examiner also found the prior art of Marazzi et al. (US 2003/0077054 A1). Marazzi discloses the housing, as disclosed by the applicant, for housing a Lithium Niobate modulator chip. However, Marazzi does not disclose the accessory chip, wherein thin film resistor is connected to the RF connector and the thin film resistor is placed in the coplanar waveguide. Examiner finds no motivation to combine the prior art of Ishimura and Marazzi to reject the current independent claims. Therefore, claims 7, 9, 12-17, 20, 23-24, and 26-27 are allowed by virtue of dependency on the allowable independent claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Erin D Chiem
Examiner
Art Unit 2883



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